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(54) **DART BOARD RING**

(57) The present invention provides a method of manufacturing a dart board ring 10 for a dart board 30. The method comprises the processing of a sheet of metal to provide at least a segment of the dart board number ring 10. The segment comprises a ring portion 2, a plurality of numbers 1 laterally spaced along and extending away from the ring portion 2, and a free end. The method comprises the step of joining the free end to another free end.

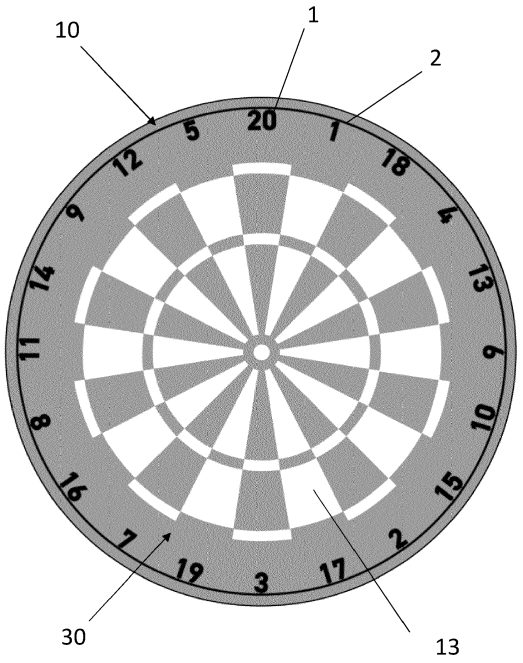

Fig. 1

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Description

Field of the Invention

[0001] The present invention concerns a number ring on a dart board. More particularly, but not exclusively, this invention concerns a method of manufacturing a number ring.

Background of the Invention.

[0002] Dart boards have a ring of numbers around the front face of the dart board. Traditionally, a circular piece of metal wire is placed around the periphery of the face of the dart board. When constructing the number ring, each number is individually manufactured and is attached to the circumferential wire by gluing, welding, brazing or other attachment means.

[0003] This method of manufacturing the number ring of a dart board can be costly and time consuming. There can be up to 31 numbers on a board. Numbers with double digits would also be made from separate individual numbers, then positioned next to each other and individually attached to the ring portion. Often this method of making the numbers and attaching them to the ring portion forms weak points which lead to the disengagement of the numbers and having to replace the dart board number ring. Individual numbers are prone to detaching from the ring due to the impact of a mis-thrown dart.

[0004] Some manufacturers that make the number ring from wire require the numbers to be formed by hand. This method is time consuming and may introduce human error. Alternatively, the numbers can be produced by a wire forming machine which requires several wire forming tools. An alternative method involves the use of plastic numbers which may be injection moulded and may include an integral clip to secure them to the metal ring. Once the appropriate tooling has been designed and manufactured, it is very costly to change the style of numbers from that of the tool used.

[0005] Dartboard numbers can also be punched out individually using traditional press tooling methods. To achieve this, there would need to be 14 separate press tools and 31 individual numbers.

[0006] Once the numbers are manufactured, they have to be correctly positioned to correspond correctly to the scoring segments of a dartboard. This requires skill and experience and numbers can often be misplaced by a few degrees.

[0007] The present invention seeks to mitigate the above-mentioned problems.

Summary of the Invention

[0008] The present invention provides a method of manufacturing a dart board ring, the method comprising the steps of: processing a sheet of metal to provide at least a segment of the dart board number ring, wherein the segment comprises a ring portion and a plurality of numbers, the plurality of numbers laterally spaced along and extending away from the ring portion, the segment comprising a free end, and joining the free end to another free end of a segment.

[0009] Where the term segment is used, the skilled person will appreciate that the segment is one-piece element made from processing the sheet of metal. As such, the plurality of numbers and the ring portion of a segment are all formed from a single piece of material. The single piece of material may further comprise one or more tabs joining the plurality of numbers to the ring portion.

[0010] The method may comprise using a single segment with two free ends, and joining one free end of the segment to the other free end of the segment. The segment may be the same segment, such that a single piece dart board ring is created. Such an arrangement may require only a single joining step. As such, the method may be considerably more efficient and faster than prior art processes. The segment may comprise a first free end and a second free end, with the first free end being joined, in the joining step, to the second free end, thereby creating a complete circle with the ring portion. The method may comprise the step of forming, or bending the segment prior to joining the free end to another free end of a segment. The step of forming, or bending the segment prior to joining the free end of another segment may comprise forming, or bending only the ring portion of the segment. The numbers may extend away from the ring portion in the same direction both before and after the forming, or bending, of the ring portion of the segment.

[0011] The method of manufacture may comprise the step of the segment being joined to a different segment, such that the dart board ring comprises multiple segments, for example, two, three, or four segments, joined together. A free end of one segment may be arranged to abut the free end of another segment. A plurality of segments may be arranged adjacent to one another to form one number ring. The free end of one segment may be attached to the free end of another segment. Any conventional attachment method may be used such as gluing, welding and/ or soldering. The plurality of segments may be attached to each other at their open ends before being mounted on the face of the dart board. The method of manufacture may comprise the step of processing a metal sheet to create a plurality of segments, whereby the plurality of segments are joined together to provide a number ring. For example, the metal sheet may be processed to form a segment comprising the numbers 1, 18, 4, 13, and 6, and a further segment comprising the numbers 10, 15, 2, 17 and 3. The metal sheet may be further processed to provide further segments to complete the dart board number ring.

[0012] The joining step may comprise a welding step. The joining step may comprise an adhesive step. The joining step may comprise provision of a mechanical connector, such as a clip, rivet, or screw.

[0013] The number ring may be adhered to the dart

board by clips, or other attachment means.

[0014] The processing of the number ring may comprise the step of cutting the segment from the sheet of metal. The number ring may be cut using a Computer Numeric Control (CNC) programme. The cutting process may be laser cutting, water cutting, flame cutting, plasma cutting, or any other suitable cutting technique.

[0015] Alternatively, the processing may comprise the step of punching the segment from the sheet of metal.

[0016] The sheet of metal may be metal or aluminium, or other suitable metal. The method may comprise the step of painting or powder coating the segment.

[0017] According to a second aspect of the invention, there is provided a dart board ring manufactured according to the method described herein.

[0018] It will of course be appreciated that features described in relation to one aspect of the present invention may be incorporated into other aspects of the present invention. For example, the method of the invention may incorporate any of the features described with reference to the apparatus of the invention and *vice versa.*

Description of the Drawings

[0019] Embodiments of the present invention will now be described by way of example only with reference to the accompanying schematic drawings of which:

Figure 1 shows a view of a dart board number ring on a dart board;
Figure 2 and Figure 3 show segments of the number ring;
Figure 4 shows a close up of a number on the ring portion; and
Figure 5 shows a partial side view of a dart board with the number ring mounted to the dart board.

Detailed Description

[0020] Figure 1 shows the number ring 10 on a dart board 30. The dartboard comprises compressed sisal fibres, a wooden back, and a metal band around the periphery, which maintains the compression of the sisal fibres. The dartboard comprises a face divided up into scoring segments 13, with number scores indicated by the number ring 10 corresponding to those scoring segments. The number ring 10 is arranged around the circumference of the dart board face, and within the metal band, and is removable to allow for rotation with respect to the scoring segments to prevent premature wear of popular scoring segments. As such, the number ring 10 does not form an integral structural component of the dart board 30. The numbers 1 are arranged so that when the dart board 30 is placed on the wall for use, the numbers 1 will be arranged so that they are oriented radially to be read by the user/player.

[0021] The numbers 1 are all connected to a ring portion 2 by a small amount of material 3 (shown in Fig. 4 and described below). Figure 2 shows the number ring 10 before being bent, the free ends of the segments being joined together, and mounted on to the surface of a dart board 30. Once bent and joined together, the ring portion 2 forms a circular ring with the plurality of numbers located within the ring portion 2. The ring portion 2 is arranged to be flush with the face of the dart board 30.

[0022] Figure 3 shows an alternative embodiment, comprising a number of segments 10a, 10b, 10c of the number ring 10. Each of the segments 10a, 10b, 10c, is bent, and then a free end of each segment 10a, 10b, 10c, is joined to free end of another of the segments 10a, 10b, 10c, such that a circular dart board ring is created. The joining may comprise welding, adhesive, or mechanical fasteners.

[0023] Figure 4 shows a close up of part of a number ring 10. The segment may be cut using laser or plasma cutters, water jet or other cutting mechanisms. In an alternative embodiment, the segments are pressed, punched, or stamped out of a sheet of metal. The ring portion 2 will connect to the numbers 1 by a small attachment tab 3. As can be seen in Figure 4, different numbers may be joined to the ring portion 2 by differently sized attachment tabs 3. For example, the surface of the number "3" that is required to be connected to the ring portion 2, is wider than the surface of the number "4", therefore the attachment tab 3 may be wider. It will be appreciated that the attachment tab 3 may have a range of lengths (i.e. laterally along the direction of the ring portion) to accommodate different numbers. It will also be appreciated that the attachment tab 3 may also have a range of widths i.e. extending away from the ring portion 2. The numbers 1 may be directly extending from the ring portion 2 without requiring a tab to be created.

[0024] The dartboard number ring 10 may be connected to the dartboard 30 by the use of removable clips or other suitable fasteners. Figure 5 shows a cross sectional view of the side of the dart board 30 with the number ring 10 attached to the dart board. In this embodiment, the numbers 1 lie flush on the face of the dart board 30.

[0025] Where in the foregoing description, integers or elements are mentioned which have known, obvious or foreseeable equivalents, then such equivalents are herein incorporated as if individually set forth. Reference should be made to the claims for determining the true scope of the present invention, which should be construed so as to encompass any such equivalents. It will also be appreciated by the reader that integers or features of the invention that are described as preferable, advantageous, convenient or the like are optional and do not limit the scope of the independent claims. Moreover, it is to be understood that such optional integers or features, whilst of possible benefit in some embodiments of the invention, may not be desirable, and may therefore be absent, in other embodiments.

Claims

1. A method of manufacturing a dart board ring, the method comprising the steps of:

   processing a sheet of metal to provide at least a segment of the dart board number ring, wherein the segment comprises a ring portion and a plurality of numbers, the plurality of numbers laterally spaced along and extending away from the ring portion,
   the segment comprising a free end
   joining the free end to another free end of a segment.

2. A method as claimed in claim 1, comprising the step of using a single segment with two free ends, and joining one free end of the segment to the other free end of the segment.

3. A method as claimed in claim 1 or claim 2, whereby only a single joining step is required.

4. A method as claimed in claim 1, where the segment is joined to a different segment, such that the dart board ring comprises multiple segments.

5. A method as claimed in any preceding claim, wherein the joining step comprises a welding step.

6. A method as claimed in any of claims 1 to 5, wherein the joining step comprises an adhesive step.

7. A method as claimed in any preceding claim, wherein the processing comprises the step of cutting the segment from the sheet of metal.

8. A method as claimed in any of claims 1 to 6, wherein the processing comprises the step of punching the segment from the sheet of metal.

9. A method according to any preceding claim, wherein the sheet of metal may be metal or aluminium, or other suitable metal.

10. A method according to any preceding claim, further comprising the step of painting or powder coating the segment.

11. A method according to any preceding claims, wherein each of the plurality of numbers is joined to the ring portion by a tab.

12. A dart board ring manufactured according to the method of claim 1.

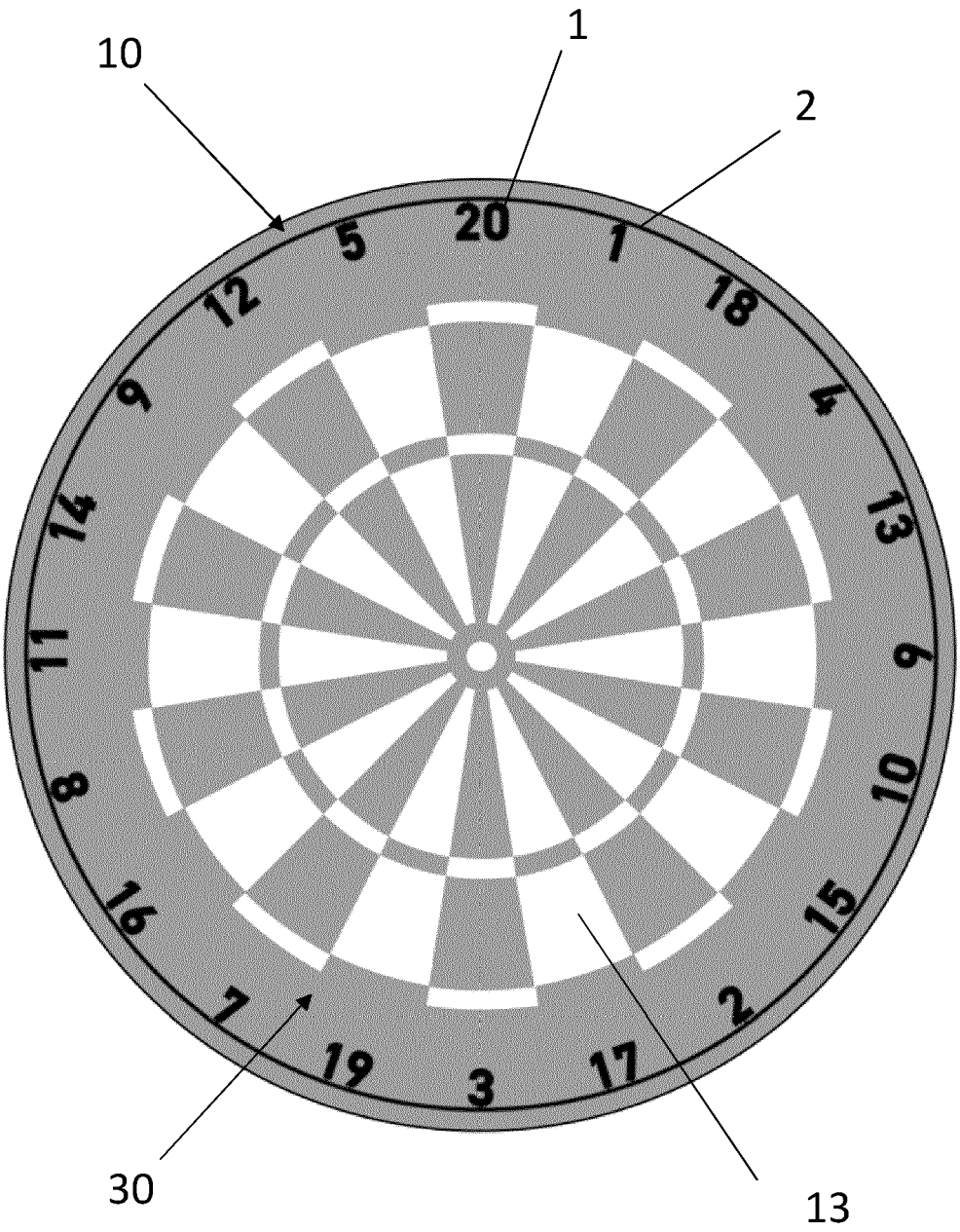

Fig. 1

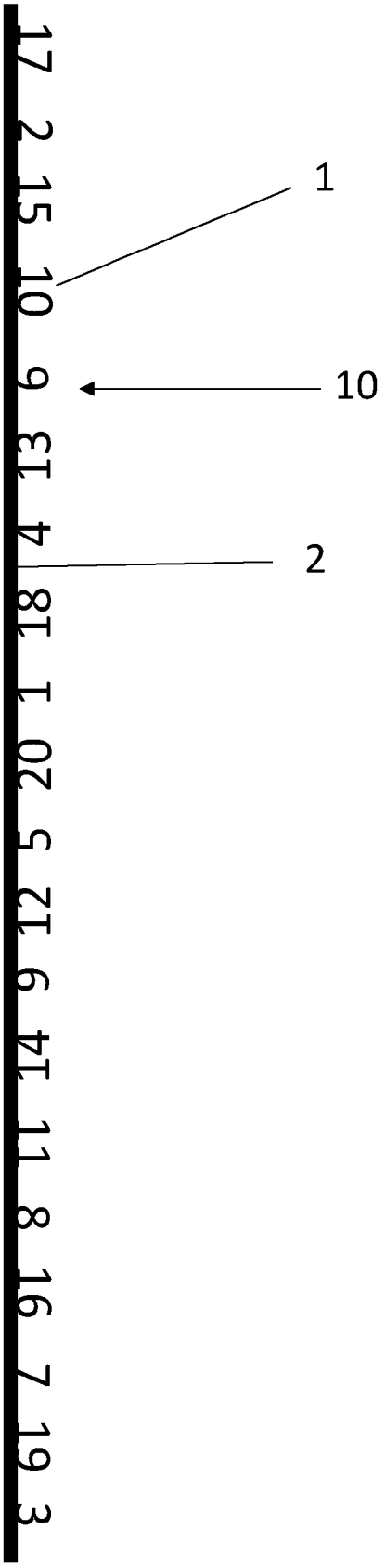
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Fig. 2

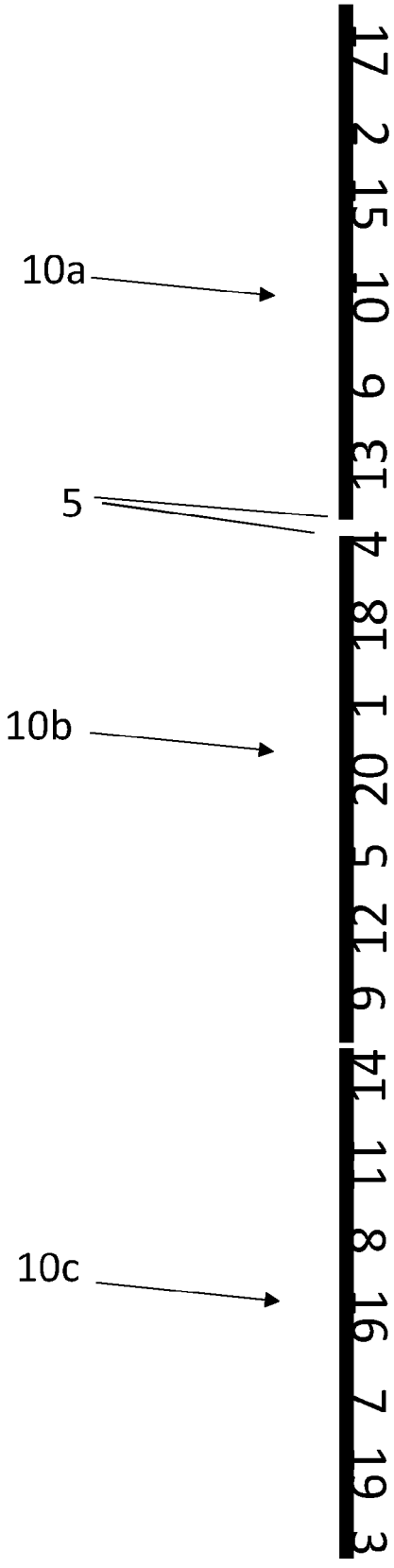
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Fig. 3

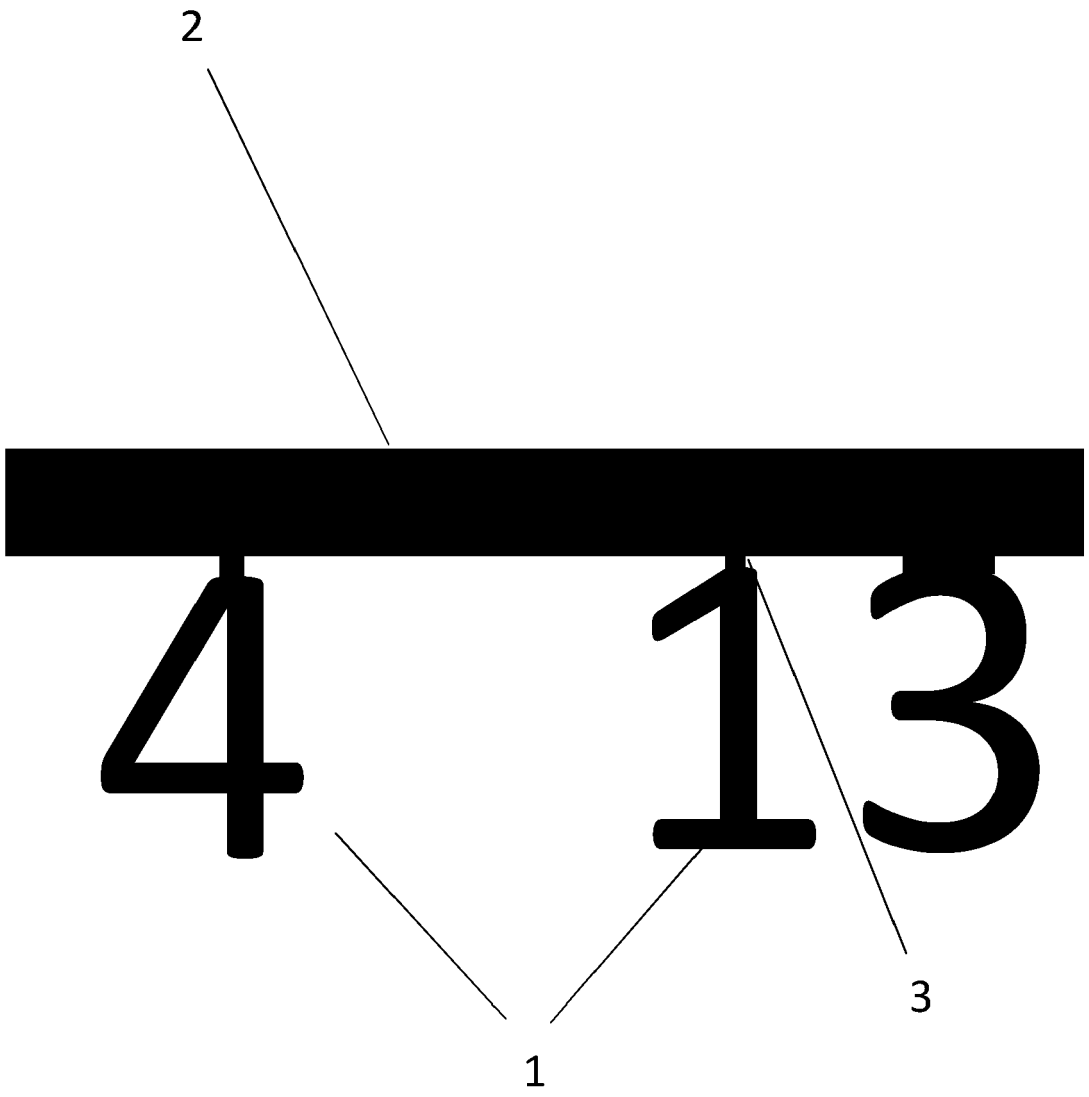

Fig. 4

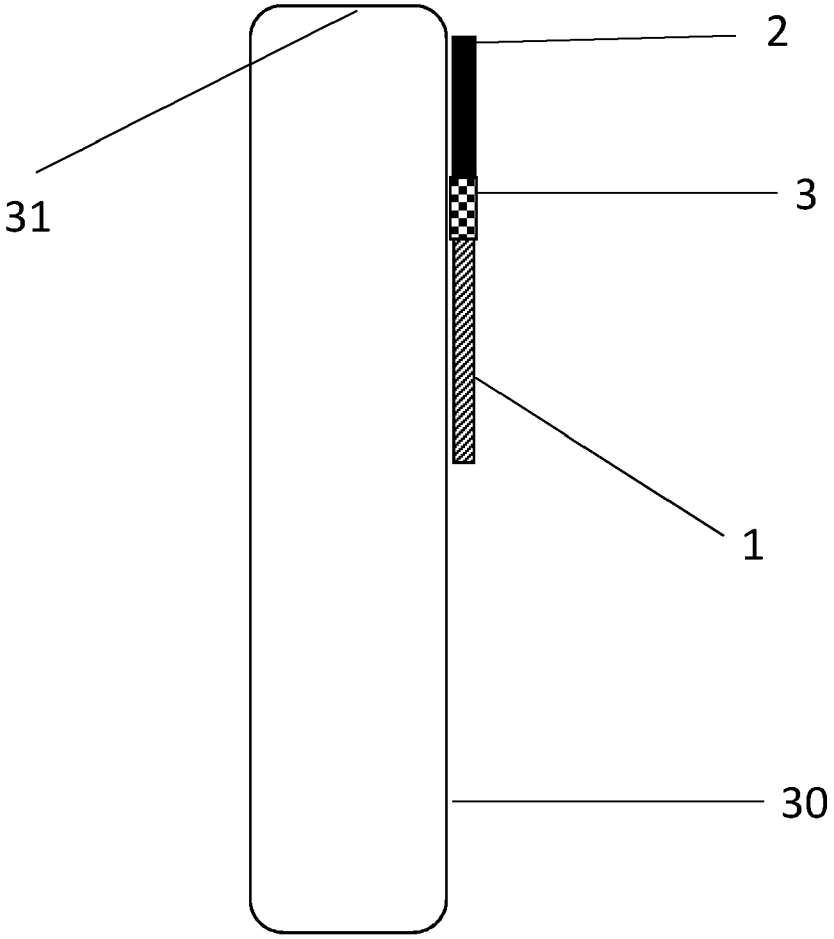

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 20 21 5410

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	GB 463 426 A (SIDNEY WALTER SCAMMELL; CLAUDE ALAN RICHARDSON) 30 March 1937 (1937-03-30) * abstract * * page 2, lines 9-31,49-53 * * figure 1 *	1-12	INV. F41J3/00
X	GB 504 959 A (JOHN ARTHUR ELLAM; JAMES HILL DAWSON) 3 May 1939 (1939-05-03) * abstract * * page 2, lines 50-73 * * figure 1 *	12	
A	GB 2 471 337 A (UNICORN PRODUCTS LTD [GB]) 29 December 2010 (2010-12-29) * abstract * * figure 1 *	1-12	
			TECHNICAL FIELDS SEARCHED (IPC)
			F41J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	11 May 2021	Menier, Renan

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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11-05-2021

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 463426 A	30-03-1937	NONE	
GB 504959 A	03-05-1939	NONE	
GB 2471337 A	29-12-2010	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82